I N D O N E S I A

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CRISIS BULLETIN

Increasing coverage of high-dose vitamin A capsules to prevent crisis-induced re-emergence of vitamin A deficiency

With the transition to the new government in Indonesia, economic recovery looks set to be achieved within 3 to 5 years, according to analysts. However, the crisis has had a significant impact on the population's nutrition and health. This Bulletin reports on the high prevalence of vitamin A deficiency (VAD) found among children living in urban slums and women of reproductive age during the first half of 1999. Although the end of the economic crisis is now in sight, the threat of the re-emergence of VAD is still a problem that urgently needs to be addressed.

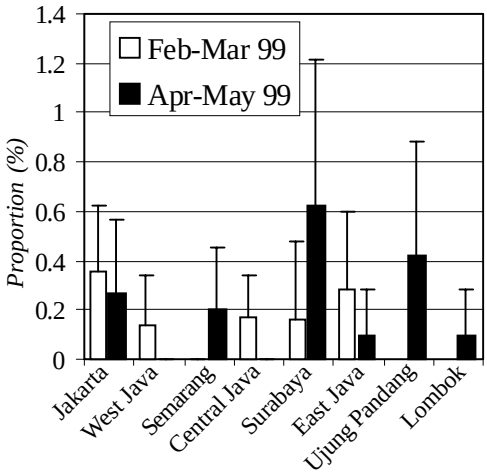
The increase of micronutrient deficiencies such as VAD is due to a lower consumption of micronutrient-rich foods, especially animal products and fortified foods, because these are also the most expensive foods that have now become almost unaffordable for those most vulnerable to the crisis.

Among children, the increase of VAD has been relatively limited, because high-dose vitamin A capsules are a major source of vitamin A and their distribution has been fairly well maintained during the crisis. The risk of VAD has particularly increased among groups who mainly depend on food sources of vitamin A, such as women of reproductive age and children who live in areas where the coverage of vitamin A capsule distribution has been relatively low.

The HKI/GOI-MOH Nutrition Surveillance System regularly collects data among 30,000-40,000 households in a variety of urban and rural areas of Indonesia to assess health and nutritional status of women and children and monitor health- and crisis-relief- programs. In Jan-Mar 99 and in Apr-May 99 data were collected on, among other information, VAD, and coverage of vitamin A capsule distribution among underfives and their mothers in four urban slum areas (Jakarta, Surabaya, Ujung Pandang and Semarang) and four rural areas (West Java, Central Java, East Java and Lombok).

(Cont'd on p2, col. 1)

Figure 1. Prevalence of night blindness in Jan-Mar 1999 and Apr-May 1999 among urban and rural children aged 12-23 mo old. Bars indicate 95% CI (Confidence Interval) corrected for design effect.



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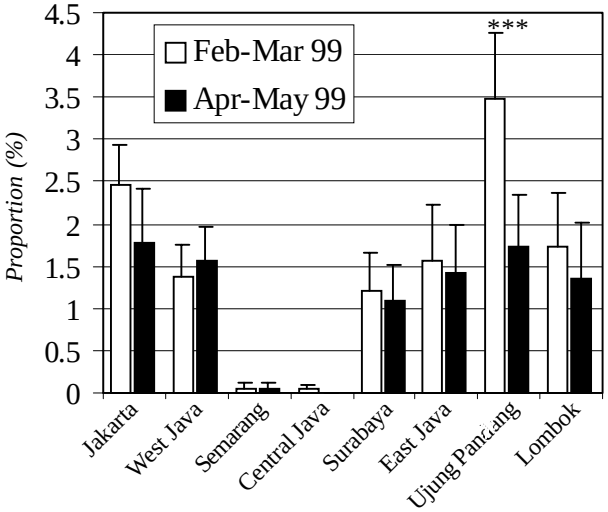
(Cont'd from p1, col. 2)

Figure 1 shows the prevalence of nightblindness, the first clinical sign of VAD, among children aged 12 – 23 mo old. The prevalence ranged between 0-0.6% and tended to be higher in urban areas (Surabaya, Ujung Pandang and Jakarta) than in rural areas. A comparison of data collected in Central Java before and after the onset of the crisis (reported in HKI/ GOI Crisis bulletin, Issue 2, October 1998) revealed an increase of the prevalence of nightblindness from <0.1% to >0.2%. The prevalences reported in this Crisis Bulletin indicate that in the first half of 1999, VAD may still have been increasing among children, but the overall prevalence was still relatively low.

Among non-pregnant women, the prevalence of nightblindness was much higher than among children. It ranged between 1-3.5% in all areas except in Central Java including Semarang (see figure 2). This is nearly as much as the prevalence found in the HKI/GOB national vitamin A survey in rural Bangladesh conducted in 1997, which found 1.7% among non-pregnant non-lactating women and 2.4% among lactating women. Among pregnant women, the prevalence of nightblindness ranged from 0-4% (data not shown because of the small number of cases).

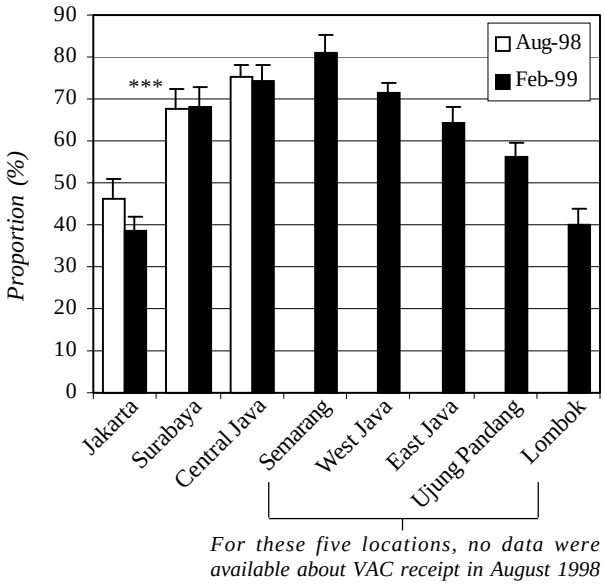
Figure 3 shows the coverage of the distribution of high-dose vitamin A capsules (VAC) among urban and rural children aged 12-59 mo in the two capsule distribution months that preceded the NSS data-collection rounds reported here: August 1998 and February 1999. Until early 1999, VACs were only distributed to children aged 12-59 mo. Among them,

Figure 2. Prevalence of nightblindness in Jan-Mar 1999 / Apr-May 1999 among non-pregnant urban and rural mothers. Bars indicate 95% CI corrected for design effect.



**** Significant difference between rounds in an area, p<0.001, Chi-square test corrected for design effect.*

Figure 3. Coverage of high-dose vitamin A capsule distribution in Aug 1998 / Feb 1999 among urban and rural children aged 12-59 mo old. Bars indicate 95% CI corrected for design effect.



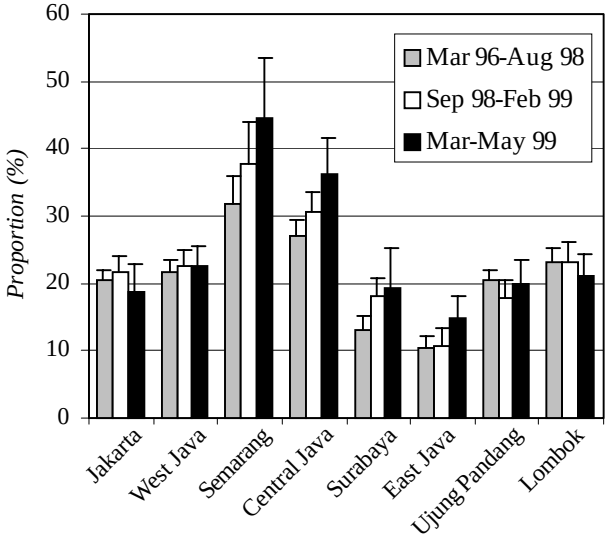
**** Significant difference between distribution months in an area, p<0.001, Chi-square test corrected for design effect.*

coverage was well-maintained between Aug 98 and Feb 99, except for a small decrease in Jakarta. In Feb 99, VAC coverage ranged from 64-81% in most areas, but was lower in Ujung Pandang (56%), Lombok (40%) and Jakarta (39%). Among children aged 6-11 mo coverage ranged from 10-35% (data not shown), which is regarded as a spill-over effect of the distribution to older children and as a consequence of inaccuracies of birth dates reported. A large design effect was found for VAC coverage among children aged 12-59 mo old (2.5-8), which indicates that program performance varies widely between villages within a provinces or between slums within a city.

Now, the challenge is to increase coverage of the vitamin A capsule distribution program in the urban areas, particularly in Jakarta, and in some outer islands, including Lombok, to soon achieve good coverage among the new target group of children aged 6-11 mo, and to reduce the large differences of coverage within areas.

The coverage of the distribution of high-dose vitamin A capsules to women within 30 days of delivery, which was introduced in Indonesia in 1991, is increasing in many areas (figure 4). By now, coverage ranges from 15-25% in most urban and rural areas to 35-45% in Central Java and Semarang. The higher coverage in Central Java, including the city of Semarang, is due to a special program to increase coverage of postpartum capsule distribution

Figure 4. Coverage of high-dose vitamin A capsule distribution to urban and rural women within 30 days of delivery between Mar 1996 and August 1999. Bars indicate 95% CI corrected for design effect.



in Central Java that started in 1996. Figure 2 shows that this is also the area where the prevalence of nightblindness was found to be the lowest.

While coverage of VAC distribution to women after delivery has increased, its design effect has decreased (between Mar 1996 and Aug 1999 from 6.9 to 2.9 in Central Java and from 2.2 to 1.2 in Jakarta). This indicates that coverage within a province or city has become more similar. Thus, findings with respect to coverage as well to design effect show that program performance has improved. However, because coverage is still relatively low (15-45%), because coverage has not increased everywhere, and because of the observed increase of nightblindness among women of reproductive age, efforts to further increase coverage of the distribution of high-dose vitamin A capsules to women after delivery should be intensified.

Conclusion

Because of Indonesia's crisis, the quality of the diet has reduced markedly which has had a devastating impact on the prevalence and severity of micronutrient deficiencies. Due to the relatively well-maintained coverage of the vitamin A capsule distribution program among children aged 12-59 mo old, VAD has mainly increased among women of reproductive age and among children in urban areas and outer islands where coverage was lower than in rural Java. Intensification and expansion of the vitamin A capsule program should be of high priority.

Recommendations

Based on the findings presented above, we recommend that

1. **Efforts to prevent vitamin A deficiency are intensified** by:
- VAC distribution among infants aged 6-11 mo old
- maintaining coverage of VAC distribution among children aged 12-59 mo old and achieve similar coverage across all villages of a province or slums of a city
- increasing coverage of VAC distribution among children aged 12-59 mo old in urban areas and outer islands
- increasing targeted distribution of VAC to high-risk children (see HKI/GOI crisis bulletin, Issue 6, September 1999)
- increasing coverage of VAC distribution to women within 30 days of delivery
- promotion of exclusive breastfeeding for the first 4-6 months of life, including the feeding of colostrum (first milk produced by mother after delivery)
- increasing the micronutrient content of the diet by including more fortified foods and foods of animal origin in the diet

2. **Monitoring of vitamin A status, vitamin A intake and VAC coverage in urban and rural areas of Indonesia is continued and expanded.**

Dietary vitamin A intake affected by Indonesia's crisis

Recent research has shown that foods of animal origin (eggs, butter, milk and liver) and fortified foods (margarine, commercially available weaning foods, noodles marketed in Indonesia etc) are the best sources of readily available vitamin A. While dark-green leafy vegetables and yellow and orange fruits and vegetables are the most affordable dietary sources of vitamin A, the bioavailability of their vitamin A is much lower.
Because Indonesia's crisis has reduced the purchasing power of most of the population, the consumption of relatively luxury foods, such as animal foods and fortified foods, has decreased markedly. This has had led to a large decrease of the intake of micronutrients, including vitamin A.

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